

Chapter 3

Construction and Repair/Renovation

Highlights . . .

- p In fiscal years 1994-1995, expenditures on projects to construct biomedical research space totaled \$1,521 million. This amount represented a decline of \$723 million in constant dollars (that is, adjusted for inflation) from the two previous fiscal years 1992-1993.
- p Expenditures on projects to repair/renovate biomedical research space also declined from fiscal years 1992-1993 levels. In fiscal years 1992-1993, biomedical research institutions spent \$710 million to repair/renovate biomedical research space; in the following two fiscal years, these institutions spent \$674 million, a decline of \$36 million (in constant dollars).
- p Colleges and universities were the only type of institution to increase spending to construct new biomedical research space between 1992-1993 and 1994-1995. Similarly, they were the only type of institution to increase spending to repair/renovate biomedical research space across these fiscal years.

Data Considerations

Data reported in this chapter reflect the extent of construction and repair/renovation activity underway in fiscal years 1994-1995. Tables that report expenditures or costs over time are presented in 1995 constant dollars. These “inflation adjusted” dollars compensate for variations in the purchasing power of the dollar over time, using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

Previous NIH reports also used inflators. The 1994 report adjusted all dollar figures to 1993 dollars using the same index applied in this 1996 report. Earlier reports used the Gross Domestic Product. *Thus, dollar figures presented in this report cannot be compared to dollar figures presented in earlier reports.* (See Appendix A, Technical Notes, for further discussion of the price index.)

Throughout this chapter, as well as the rest of the report, the term “capital projects” refers to either construction projects or repair/renovation activities. Construction always refers to building facilities that currently do not exist; repair/renovation implies remodeling or restoring existing facilities.

Findings for construction and repair/renovation projects are limited to those projects with research related costs of \$100,000 or more. All reported costs are estimates of total project costs including planning, construction, and fixed equipment. However, institutions prorated the research-related portion of the cost if the capital project served multiple purposes. In the case of multiyear projects, all project costs were allocated to the fiscal year in which the construction, repair, or renovation actually began.

Findings

Construction Activity

In fiscal years 1994-1995, 109 biomedical research institutions began construction of new biomedical research facilities (Table 3-1). These institutions beginning construction represented 14 percent of all biomedical institutions, a decrease from the 20 percent of institutions starting construction during fiscal years 1992-1993 and the 23 percent in 1990-1991.

Although the numbers of biomedical research institutions starting projects to construct research space declined in each time period since 1988-1989, the drop between fiscal years 1992-1993 and 1994-1995 is notable. In 1992-1993, 151 institutions reported starting construction projects; in 1994-1995, 109 institutions started projects to construct biomedical research space. Colleges and universities and medical schools account for most of this decline.

Table 3-1
Number of institutions starting any projects to construct biomedical research space, by institution type and year of project start: 1986-1997¹

INSTITUTION TYPE	Construction project start year					
	1986 or 1987 [Actual]	1988 or 1989 [Actual]	1990 or 1991 [Actual]	1992 or 1993 [Actual]	1994 or 1995 [Actual]	1996 or 1997 [Planned]
All biomedical research institutions	137	158	150	151	109	110
Colleges and universities	53	94	82	63	50	67
Medical schools	54	46	78	54	34	36
Research organizations	22	18	11	13	11	11
Hospitals	21	10	9	16	22	5

¹Findings are limited to projects with estimated total cost at completion of \$100,000 or more for research space. Estimates are prorated to reflect research components only.

NOTE: Category totals do not sum to grand totals because many institutions contain both a college/university (exclusive of medical school) and a medical school. In grand totals, medical schools are counted as separate institutions only if they are not part of larger universities. Because of rounding, components may not add to totals.

SOURCE: National Institutes of Health, *The Status of Biomedical Research Facilities: 1996*, Bethesda, MD, 1997

During the two year period 1994-1995, expenditures for biomedical research space construction projects totaled \$1,521 million. This amount represented a decrease of \$723 million from the previous two fiscal years. This amount also represented the first decline in constant dollars for construction expenditures since NSF and NIH began collecting data on biomedical research facilities (Table 3-2).

Construction starts for both biological science and medical science research space declined from 1992-1993. Medical science construction decreased more sharply than biological science construction. Whereas the medical science construction declined from \$1,383 million in 1992-1993 to \$688 million in 1994-1995, biological science construction decreased slightly from \$862 million to \$833 million.

Construction costs for biological science research space exceeded that of medical science research space in 1994-1995. During these two fiscal years, biological science construction accounted for 55 percent of all biomedical construction.

Table 3-2
Net assignable square feet (NASF) of research space to be created and total cost of projects, to construct biomedical research space, by institution type, field, and year of project start: 1986-1997¹

[NASF in thousands; 1995 constant dollars in millions]

INSTITUTION TYPE AND FIELD	CONSTRUCTION PROJECT START YEAR											
	1986 or 1987 [Actual]		1988 or 1989 [Actual]		1990 or 1991 [Actual]		1992 or 1993 [Actual]		1994 or 1995 [Actual]		1996 or 1997 [Planned]	
	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost
Total	4,408	\$1,429	5,817	\$1,753	7,183	\$2,161	7,010	\$2,244	4,261	\$1,521	5,594	\$1,740
Institution type:												
Colleges and universities	1,888	662	1,855	530	2,431	678	1,838	489	1,416	509	2,730	751
Medical schools	1,768	552	2,660	896	3,714	1,167	4,175	1,277	2,272	751	2,514	886
Research organizations	522	146	245	89	547	133	483	195	239	67	208	55
Hospitals	230	69	1,057	237	490	183	513	285	333	194	143	48
Field:												
Biological sciences	2,245	757	2,853	805	3,114	1,033	2,686	862	2,048	833	2,457	769
Medical sciences	2,162	673	2,982	948	4,069	1,127	4,324	1,383	2,213	688	3,137	971

¹Findings are limited to projects with estimated total cost at completion of \$100,000 or more for research space. Estimates are prorated to reflect research components only.

NOTE Because of rounding, components may not add to totals.

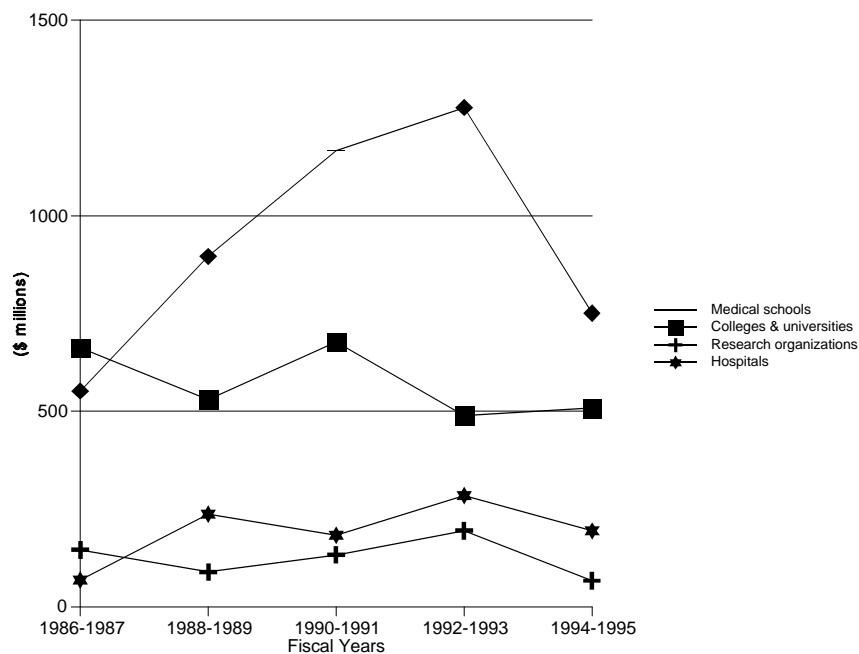
Current dollars have been adjusted to 1995 constant dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

SOURCE: National Institutes of Health, *The Status of Biomedical Research Facilities: 1996*, Bethesda, MD, 1997

Although medical schools showed a decline in construction costs from 1992-1993, they continued to start the largest amount of biomedical research construction of any type of biomedical research institution. In 1994-1995, medical schools initiated \$751 million of new construction or 49 percent of all biomedical research construction. Despite the drop in the number of colleges and universities beginning biomedical research construction projects between 1992-1993 and 1994-1995 (Table 3-1), the amount of money spent by these institutions increased slightly, from \$489 million to \$509 million across these two fiscal year periods.

Chart 3-1
Amount of biomedical research construction in biomedical research institutions: 1986-1995¹

[1995 constant dollars in millions]



¹Findings are limited to projects with estimated total cost at completion of \$100,000 or more for research space. Estimates are prorated to reflect research components only.

NOTE: Current dollars have been adjusted to 1995 constant dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

SOURCE: National Institutes of Health, *The Status of Biomedical Research Facilities: 1996*, Bethesda, MD, 1997

Repair/Renovation Activity

In fiscal years 1994-1995, 231 institutions conducted major projects — involving \$100,000 or more for research components — to repair/renovate existing biomedical research space (Table 3-3). These 231 institutions represented 30 percent of all biomedical research institutions — considerably more than the 14 percent of institutions beginning new construction projects.

Table 3-3
Number of institutions performing major repair/renovation of biomedical research facilities, by institution type and year of project start: 1986-1997¹

INSTITUTION TYPE	REPAIR/RENOVATION PROJECT START YEAR					
	1986 or 1987 [Actual]	1988 or 1989 [Actual]	1990 or 1991 [Actual]	1992 or 1993 [Actual]	1994 or 1995 [Actual]	1996 or 1997 [Planned]
All biomedical research institutions	230	241	255	228	231	208
Colleges and universities	117	132	118	121	126	118
Medical schools	88	76	109	89	86	73
Research organizations	40	34	45	30	36	30
Hospitals	23	39	34	34	28	17

¹Findings are limited to projects with estimated total cost at completion of \$100,000 or more for research space. Estimates are prorated to reflect research components only.

NOTE: Category totals do not sum to grand totals because many institutions contain both a college/university (exclusive of medical school) and a medical school. In grand totals, medical schools are counted as separate institutions only if they are not part of larger universities. Because of rounding, components may not add to totals.

SOURCE: National Institutes of Health, *The Status of Biomedical Research Facilities: 1996*, Bethesda, MD, 1997

During the two year period 1994-1995, expenditures for biomedical research space repair/renovation projects totaled \$674 million (Table 3-4). This amount represented a decrease of \$36 million from the previous two fiscal years.

Similar to new construction starts, repair/renovation to medical science research space exceeded that of the biological sciences. In 1994-1995, medical science repair/renovation accounted for 54 percent or \$367 million of all biomedical repair/renovation projects.

As with new construction, medical schools continued to start the largest amount of biomedical research repair/renovation — performing \$327 million or 49 percent of all repair/renovation in fiscal years 1994-1995. Similar to construction trends, colleges and universities were the only institution type that increased repair/renovation costs, from \$148 million in 1992-1993 to \$186 million in 1994-95.

Table 3-4
Net assignable square feet (NASF) of space affected and total cost of projects to
repair/renovate biomedical research space, by institution type, field, and
year of project start: 1986-1997¹

[NASF in thousands; 1995 constant dollars in millions]

INSTITUTION TYPE AND FIELD	REPAIR/RENOVATION PROJECT START YEAR											
	1986 or 1987 [Actual]		1988 or 1989 [Actual]		1990 or 1991 [Actual]		1992 or 1993 [Actual]		1994 or 1995 [Actual]		1996 or 1997 [Planned]	
	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost	NASF	Cost
Total	7,689	\$658	6,454	\$615	5,486	\$629	5,168	\$710	7,131	\$674	7,811	\$642
Institution type:												
Colleges and universities	3,293	249	2,910	216	1,682	212	1,588	148	2,366	186	2,550	252
Medical schools	3,555	317	2,856	277	2,745	326	2,542	378	3,880	327	4,438	307
Research organizations	415	30	355	35	516	34	268	41	345	31	355	37
Hospitals	427	63	333	87	543	57	770	143	540	130	468	46
Field:												
Biological sciences	3,863	302	3,854	319	2,874	331	2,848	388	2,836	307	3,620	397
Medical sciences	3,826	272	2,600	297	2,612	297	2,320	322	4,295	367	4,190	246

¹Findings are limited to projects with estimated total cost at completion of \$100,000 or more for research space. Estimates are prorated to reflect research components only.

NOTE Because of rounding, components may not add to totals.

Current dollars have been adjusted to 1995 constant dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

SOURCE: National Institutes of Health, *The Status of Biomedical Research Facilities: 1996*, Bethesda, MD, 1997